

SPECIFICATION

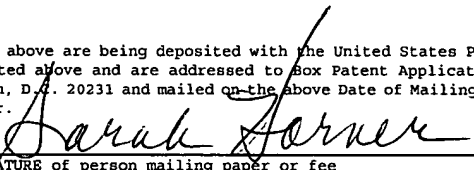
Docket No. 21089.001

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN that I, Dwayne Wink, a citizen of the United States of America, residing in the State of Texas, have invented new and useful improvements in a

APPARATUS AND METHOD FOR SUPPORTING ROLL-UP SAFETY FENCING

of which the following is a specification:

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BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention generally relates to fence posts and, more particularly, to a reusable fence post adapted to supporting roll-up fencing and a method of erecting the roll-up fencing.

2. Description of the Prior Art:

Self-driving posts that are installable by one person have been known in the art for many years as solutions to the problem of installing fence posts or sign posts quickly without the use of tools or assistance by other persons. In the prior art, some posts are configured for enclosing a stake that slides within the post wherein the post is used as a ram to hammer the stake into the ground or to extract the stake by thrusting the post forcefully upward against a stop on the stake. Further, some prior art fence post designs are known having a two-piece post assembly wherein a first one of the two parallel, elongated and adjoining pieces pivots away from one end of the second piece of the post for receiving a wire fence or the slats of a fence between the two pieces of the post. Either or both of the pieces may have slots for supporting the fence material, which is typically stiff and has the ability to maintain its shape, even when not supported at more than a few locations along its width or length. In use, the first, pivoting piece of the post is then generally brought toward and secured to the second piece to enclose the fence material.

A relatively new kind of fence material is a thin, flexible, plastic fencing that is typically supplied in 50 foot or 100 foot rolls and may be four feet wide. This fencing material, in one typical product supplied by Tenax Corporation, Baltimore, MD 21205, is formed of high density polyethylene (HDPE) plastic, which provides a strong yet lightweight fencing that is well suited for use in a variety of applications, particularly as a safety barrier around construction sites and excavations. Its light weight and flexibility makes it easy to handle by work crews.

1 However, a significant problem is presented by the flexibility and light weight of the plastic
2 fencing material. The plastic fencing material, being thin (e.g., about 20 mils thick) very flexible,
3 lacks the stiffness needed to maintain its shape when supported by conventional fence posts unless
4 unusual effort and often extra materials are required to secure the plastic fencing to the posts at many
5 places along its length as well as across its width. The result is that substantial time is required to
6 erect such a fence, or worse, a fence is erected haphazardly because there is no convenient way to
7 properly support the fencing material. This inconvenience of installation often results in the collapse
8 of the fencing and the loss of its effectiveness as a safety barrier. Moreover, there is currently no
9 known fence post that prevents the plastic fencing from slipping in both the lengthwise and crosswise
10 directions. Slippage of this kind is one of the causes of collapse of this type of fencing. Improvised
11 posts and unsatisfactory methods of attaching the plastic fencing to the posts are other causes of
12 collapsed fencing.

13
14 What is needed is a fence post that may be installed without tools by one person, that is
15 durable and reusable, and that is adapted to fully support and retain flexible plastic safety fencing in
16 its proper position without the use of tools or any additional parts or components to secure the
17 fencing to the fence posts.

SUMMARY OF THE INVENTION

Accordingly there is disclosed a reusable fence post for supporting flexible plastic safety fencing around an excavation or construction site, comprising a hollow post having an outside V-angle clamping surface on one side of the post to form a fixed jaw; a stake extending downward from and attached to the lower end of a sliding hammer that slides freely up and down within the hollow post wherein the stake extends downward through an opening in the bottom end of the hollow post and wherein a lower stop collar is secured around and approximately bisecting the length of the stake; and an elongated, movable jaw, having an inside V-angle clamping surface facing the outside V-angle clamping surface, the elongated jaw member being hinged at the lower end to the hollow post, allowing the upper end of the elongated jaw member to swing in an arc to close the elongated jaw against the safety fencing held between the inside and outside V-angle clamping surfaces, thereby clamping the safety fencing securely therebetween. When the safety fencing is thus clamped, the outside V-angle clamping surface of the first exterior side of the hollow post is positioned in a nesting relationship with the inside V-angle clamping surface of the elongated jaw member, supporting the flexible safety fencing across its full width, against both lengthwise and crosswise slippage. A latching mechanism is provided at the top of the hollow post to retain the elongated jaw in position against the hollow post. A buttress brace or foot may extend from the bottom of the hollow post on the side opposite the fixed jaw to stabilize the hollow post against the tension exerted by the safety fencing surrounding the excavation or construction site.

In one alternate embodiment, the hollow fence post is replaced with a length of angle iron having at least two pipe sections, the uppermost one closed at its upper end with a cap and attached to a midpoint of the angle iron post, and the lowermost one attached to the lower end of the post. An elongated jaw, also formed of angle iron, is hingeably attached to the lower end of the angle iron post. The two angle iron or inside and outside V-angle sections function as described in the embodiment above, securing the plastic fencing between a pair of angle iron surfaces in a nesting relationship to prevent slippage of the fencing material. The uppermost one of the pipe sections receives the upper end of the stake. The stake includes a stop collar at a midpoint of its length,

1 disposed below the lower end of the post. The post forms a hammer that slides downward along the
2 stake to strike the stop collar and drive the stake into the ground. In a modification to this
3 embodiment, a rod having a male ACME thread at its lower end is attached to the inside "V" of the
4 angle iron post. The ACME thread of the rod may be mated with a female thread on the top portion
5 of a stake or on the upper side of a stand or base.

6
7 In another alternate embodiment, a stand is provided to support the hollow fence post on
8 concrete or other impenetrable surfaces. The stand may be a round frame having diametric cross bars
9 attached to an upward-directed socket located near the center of the stand. The socket is configured
10 for receiving the lower end of the hollow fence post therein, and retaining the fence post with a pin
11 inserted through corresponding holes in the fence post and the socket. In this embodiment the sliding
12 hammer and the stake are omitted and the stand may be weighted downward against the impenetrable
13 surface with sandbags, for example.

14
15 In another alternate embodiment, the fixed jaw along the one side of the hollow post may be
16 configured as an inside V-angle facing away from the one side of the hollow post and the elongated
17 movable or pivoting jaw is configured as an elongated rod for clamping the flexible plastic safety
18 fencing between the fixed inside V-angle and the pivoting rod jaws.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates the installation by a workman of one embodiment of a reusable fence post having a double angle iron jaw configuration for supporting a flexible plastic safety fencing according to the present disclosure, the fence post shown at the beginning of downward movement from an initial position;

Figure 2 illustrates the installation by a workman of the reusable fence post of Figure 1 being rammed downward against a fixed collar around a stake within the fence post, driving the stake portion of the fence post into the ground;

Figure 3A illustrates a detailed perspective drawing of the embodiment of the reusable fence post of Figure 1, shown in an installed position;

Figure 3B illustrates a cutaway view of the lower end of the hollow post, on the side opposite a first exterior side having an outside V-angle, showing a sliding hammer within the fence post and its attachment to a stake;

Figure 4 illustrates the embodiment of Figure 3 having a latch pin raised and an elongated jaw member swung away from the fence post in preparation for receiving a section of a flexible plastic safety fencing;

Figure 5A illustrates a side view of the latch mechanism of the embodiment of Figures 1 through 4, just before the pivoting elongated jaw member becomes latched;

Figure 5B illustrates a side view of the latch mechanism of the embodiment of Figures 1 through 4, just after the pivoting elongated jaw member is latched into a clamping position against the fixed jaw member on the first exterior side of the hollow post;

1 **Figure 6A** illustrates a sectional view from the top of the reusable fence post of Figure 3
2 showing the relationship of the flexible plastic safety fencing clamped between the movable and fixed
3 jaws of the reusable fence post according to the present disclosure;

4
5 **Figure 6B** illustrates a sectional view from the top of an alternate embodiment of the reusable
6 fence post of Figure 3 showing the relationship of the flexible plastic safety fencing clamped between
7 the movable and fixed jaws of the reusable fence post according to the present disclosure;

8
9 **Figure 7** illustrates an alternate, low-cost embodiment of a reusable fence post that eliminates
10 the hollow tube body of the reusable fence post according to the present disclosure;

11
12 **Figure 8** illustrates a view of an opposite side of the embodiment of the reusable fence post
13 shown in Figure 7;

14
15 **Figure 9** illustrates an excavation being surrounded by a plastic safety fence supported by the
16 reusable fence posts according to the present disclosure;

17
18 **Figure 10** illustrates an alternate embodiment of the reusable fence post of Figure 3A having
19 an angle-and-rod jaw configuration and corresponding hinge and latching devices; and

20
21 **Figure 11** illustrates an alternate embodiment of the reusable fence post of Figure 3A having
22 a planar base for supporting the reusable fence post upon a concrete or other impenetrable surface.
23

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 illustrates the installation, by a workman 104 standing on the ground 106, of one embodiment of a reusable fence post 100. The post is being installed in the ground 106 at a location 108. The reusable fence post 100 is shown at the beginning of downward movement from an initial position 110. The reusable fence post 100 includes a double angle iron jaw configuration (also called herein below a nested V-angle joint) for supporting a flexible plastic safety fencing according to the present disclosure. In this illustrative example, the reusable fence post 100 includes an elongated hollow post 102 having a predetermined length of approximately 4 feet, 6 inches, to accommodate a plastic fence width of four feet. The hollow post 102 is fabricated of a steel tube 120 having a wall thickness of 0.063 inch and a square cross section of 2" X 2". The hollow post 102 is closed at the bottom end by a bottom cap 130, which includes a centrally positioned hole (not shown) to allow the passage of a stake 140. The stake 140 is connected at its top end to a sliding hammer disposed within the steel tubing 120. The sliding hammer will be described herein below with respect to Figure 3B. A buttress brace 132, attached to the lower end of the hollow post 102, provides stability for the reusable fence post 100 when it is installed and is supporting the flexible plastic fencing. The buttress brace 132 forms an equilateral right triangle in cooperation with the lower end of the steel tube 120, which provides the vertical side of the right triangle. The buttress brace 132 is formed of flat, 1/4 inch steel, two inches wide. The horizontal side of the right triangle of the buttress brace 132 extends past the right angle in Figure 1 and is attached between the bottom end of the steel tube 120 and the bottom cap 130.

In Figure 1, the phantom lines 110, 112 and the solid line 114 represent initial and following positions of the hollow post 102 as the workman 104 drops the hollow post 102 downward along the stake 140 and against a stop collar 142 that is attached to the stake 140. The stop collar 142 is located approximately midway between the bottom of the stake 140 and the top end (not shown, see Figure 3B) of the stake 140. As the hollow post 102 is dropped forcefully down against the stop collar 142, the momentum of the hollow post is transferred to the stake 140, driving it into the ground 106. It may take several repetitions of this action to drive the stake 140 completely into the ground

1 106 until the stop collar 140 is near or substantially in contact with the ground 106. This method of
2 driving the stake into the ground 106 is effective for most kinds of soil and surfaces having a hardness
3 or density up to and including that of asphalt paving.
4

5 Continuing with Figure 1, the hollow post 102 further includes an outside V-angle 122
6 clamping surface formed of a four foot, three inch length of 1" x 1" x 1/8" angle iron that is centered
7 lengthwise and welded to a first exterior side of the steel tubing 120, with the inside angle (i.e., 90
8 degrees) of the angle iron facing the first exterior side of the steel tubing 120. The outside V-angle
9 122 of approximately 270 degrees forms a clamping surface that cooperates with an inside V-angle
10 (approximately 90 degrees) provided by an elongated jaw member 124, also formed of 1" X 1" X 1/8"
11 angle iron. The elongated jaw member 124, which is approximately four feet, four inches long, is
12 attached to a lower end of the steel tubing 120 by a hinge pivot 126 that enables the elongated jaw
13 member 124 to swing about the hinge pivot 126 fromward or toward the outside V-angle 122. The
14 hinge pivot 126 is supported by a bracket 128 that is attached to the lower end of the steel tubing
15 120. In use, the elongated jaw member 124 is swung away from the first exterior side of the hollow
16 post 102 to enable placing the plastic fencing material (not shown in Figure 1, but see Figures 7 and
17 9) between the outside V-angle of the first exterior side of the hollow post 102 and the inside V-angle
18 of the elongated jaw member 124. A top bracket 150, which is attached to the top end of the hollow
19 post 102, includes a latch pin 152 that slides upward and downward in a pair of parallel slots 154 in
20 opposite sides of the top bracket 150. The latch pin 152 moves upward to allow the elongated jaw
21 member 124 to be placed against the plastic fencing and outside V-angle of the hollow post 102. The
22 sliding pin then moves downward to secure the elongated jaw member against the plastic fencing and
23 the outside V-angle of the first exterior side of the hollow post 102. The operation of the latching
24 pin will be further described in conjunction with Figures 5A and 5B.
25

26 **Figure 2** illustrates the installation by the workman 104 of the reusable fence post 100 of
27 Figure 1 being rammed downward against the stop collar 142, driving the stake 140 of the fence post
28 100 into a hole 108 in the ground 106. All reference numbers and structures are the same as shown

1 in Figure 1 except that the hollow post 102 is in a downward-most position 160 with respect to the
2 stop collar 142 as the stake 140 is driven into the ground 106.

3
4 **Figure 3 A** illustrates a detailed perspective drawing of the embodiment of the reusable fence
5 post 100 of Figure 1, shown in an installed position against the ground 106, with the buttress brace
6 132 positioned against the surface of the ground 106. Structures appearing in both figures 1 and 3A
7 that have the same reference numbers are identical and will not be further described. The reusable
8 fence post 100 is shown with a middle portion of the steel tubing 120, the outside V-angle 122, and
9 the inside V-angle (the elongated jaw member) 124 components cutaway. This view shows how the
10 outside and inside V-angles 122, 124 are partially nested when the elongated jaw member 122 is
11 positioned against the first exterior side of the hollow post 120. Thus, the outside and inside V-
12 angles 122, 124 form a nested, V-angle joint. This nesting relationship is also formed when the
13 plastic fencing material (not shown in Figure 3A for clarity, but see Figure 6A, reference number 172)
14 is placed between the outside and inside V-angles 122, 124. The plastic fencing material, being
15 approximately 20 mils thick, is relatively flexible and readily conforms to the shapes of the outside
16 and inside V-angles 122, 124. The relatively sharp corners of the outside and inside V-angles 122,
17 124 force the plastic fencing into a like 90 degree angle all along the length of the V-angles 122, 124,
18 which grips the plastic fencing tightly to prevent slippage of the plastic fencing in its lengthwise
19 direction. The nested, V-angle joint also grips the plastic fencing across the full width of the plastic
20 fencing, which also prevents slippage of the plastic fencing. It should also be pointed out that the
21 sharpness of the 90 degree corners in the nested, V-angle joint are not knife-edge sharp and thus do
22 not damage the plastic fencing material placed in and clamped in the nested, V-angle joint.

23
24 Continuing with Figure 3A, there are shown several details of the latching mechanism
25 disposed at the top end of the illustrative reusable fence post according to the present disclosure of
26 Figure 3A. The top bracket 150 is seen to also form a cap over the top end of the hollow post 102
27 to prevent the introduction of moisture or debris. The top bracket 150, formed of 1/4 inch steel plate
28 in the illustrative example, is shown as an inverted U-shaped component that extends beyond the first
29 exterior side of the steel tubing 120 and the nested, V-angle, angle iron stack. Cut in a nearly vertical

direction through the extension portions of the sides of the top bracket 150 are parallel slots 152. The parallel slots 152 are approximately 5/16 inch wide to permit free passage of a 1/4 inch bolt 154 through the slots 152 of both extensions of the sides of the top bracket 150. The bolt 154, also called a sliding latch 154, moves upward in the slots 152 when a beveled end (see, e.g., Figure 5A) of the elongated jaw member 124 is swung into contact with the sliding latch 154. As the uppermost tip of the elongated jaw member 124 passes under the sliding latch 154, the sliding latch 154 drops downward in the slots to capture the end of the elongated jaw member and hold it against the outside V-angle 122. In an alternate embodiment, a wire bail 156 may be attached to the ends of the sliding latch bolt 154 to aid in grasping and lifting (or pulling downward) the sliding latch bolt, to complete the latching of the elongated jaw member 124.

Figure 3B illustrates a cutaway view of the lower end of the hollow post 102, on the side opposite the first exterior side having the outside V-angle 122, showing a sliding hammer 136 within the steel tubing 120 and the attachment of the sliding hammer 136 to the stake 140. Many of the structures of Figure 3B appear in Figures 1 through 3 and bear the same reference numbers. The side opposite the first exterior side is shown partially cutaway to show a portion of the interior of the steel tubing 120 that forms the hollow post 102. Further, the buttress brace 132, which in this view would ordinarily be coming ‘out of the page,’ is not shown, except for an edge-wise view of the bottom portion of the buttress brace 132, so that the structures of interest in this figure may appear clearly. The buttress brace 132 appears at the bottom end of the hollow post 120, as shown in Figure 1. Just below the buttress brace 132 is an end cap 130. Both the buttress brace 132 and the end cap 130 have a hole through its center, as indicated by the dotted lines 144 to permit the passage of the stake 140 therethrough. It will be appreciated that the buttress brace 132 extension effectively doubles the thickness of the bottom cap 130, forming a stronger abutment for driving the stake 140 into the ground 106.

The stake 140 may be formed of round No. 2 grade solid steel rod, 3/4 inch in diameter, to a length of approximately three feet. Although it is not necessary to sharpen the lower end of the stake 140 to facilitate its entry into the surface of the earth or asphalt paving, in some applications

1 sharpening the stake 140 may add to its utility. The sliding hammer 136 may be fabricated of 1-1/2"
2 X 1-1/2" X 8 inches long square steel tubing, with end caps 138, 139 formed of 1-1/2" X 1-1/2" X
3 1/4" steel plate. The end caps 138, 139 may be welded via welds 162 to the respective ends of the
4 sliding hammer 136. A 3/4" hole cut in each end cap enables the stake 140 to pass through the end
5 caps 138, 139 and welded thereto. In an alternate construction, the holes in the end caps 138, 139
6 may be threaded to match corresponding threads on the stake 140. The stake may be secured to the
7 sliding hammer 136 by a lock nut just below the end cap 138. Also welded via welds 162 to a
8 midpoint of the stake 140 is a stop collar 142 formed of 1/4 inch steel plate. The stop collar 142 may
9 be cut round or square. In use, the slide hammer 136 slides freely within the hollow post 120 and the
10 hollow post 120 is used as a ram to be thrust forcefully and repetitively as necessary against the stop
11 collar 142 to install the reusable fence post 100 or against the lower end cap 138 to extract the
12 reusable fence post 100.

13
14 **Figure 4** illustrates the embodiment of Figure 3A having a latch pin 154 held in a raised
15 position and an elongated jaw member 124 swung away from the hollow fence post 102 in
16 preparation for receiving a section of a flexible plastic safety fencing. All of the structures of Figure
17 4 are the same as shown previously in Figures 1 through 3 and bear the same reference numbers.

18
19 **Figure 5A** illustrates a side view of the latch mechanism at the upper end of the reusable fence
20 post 100 of the embodiment of Figures 1 through 4, just before the pivoting elongated jaw member
21 124 becomes latched when swinging it into position against the hollow post 102. The upper end of
22 the elongated jaw member 124 is cut at an angle of approximately 30 degrees relative to the
23 longitudinal axis of the elongated jaw member 124 to form a ramp angle or beveled edge 158.
24 Further, the tip of the jaw member 124 is rounded to a radius of approximately 0.063 or greater. A
25 latch pin 154, which may be a bolt retained in the pair of parallel slots 152 by a nut (not shown)
26 threaded onto a threaded end of the bolt, passes through the parallel slots 152. As the jaw member
27 124 is swung (see the arrow 166) into contact with the latch pin 154, the latch pin 154 is caused to
28 slide upward (see the arrow 168) along the ramp created by the beveled edge 158 of the jaw member
29 124 until the tip of the jaw member 124 slips under the latch pin 154. This process is facilitated by

1 the slight angle 164 from the vertical, nominally approximately ten degrees, at which the slots 152
2 are cut into the sides of the top bracket 150. After the tip of the jaw member 124 passes under the
3 latch pin 154, the latch pin 154 drops downward (see the arrow 170 in Figure 5B) in the slots 152
4 due to the gravitational force exerted thereon, and toward the outside V-angle 122 to latch the jaw
5 member against the outside V-angle 122 (See Figure 5B). As will also be appreciated, the latching
6 process may be accomplished very rapidly by simply swinging the jaw member toward the hollow
7 post 102. The ramp angles provided for the upper end of the jaw member and the slots in the top
8 bracket enable a rapid movement of the latch pin 154 - first upward 168, then downward 170, within
9 the slots 152 as the jaw member 124 is brought into contact with it.

10
11 **Figure 5B** illustrates a side view of the latch mechanism of the embodiment of Figures 1
12 through 4, just after the pivoting elongated jaw member 124 is latched into a clamping position
13 against the fixed, outside V-angle on the first exterior side of the hollow post. All of the structures
14 of Figure 5B are the same as in Figure 5A and bear the same reference numbers.

15
16 **Figure 6A** illustrates a sectional view from the top of the reusable fence post of Figure 3
17 showing the relationship of the flexible plastic safety fencing 172 clamped between the movable 124
18 and fixed 122 jaw members of the reusable fence post 100 according to the present disclosure. The
19 structures shown in Figure 6A are the same as shown in Figure 3 except for the flexible plastic
20 fencing 172 and bear the same reference numbers. The flexible plastic fencing material 172 may be
21 a flexible, plastic fencing approximately 20 mils thick that is typically supplied in 50 foot or 100 foot
22 rolls and is four feet wide. This fencing material, in one typical product supplied by Tenax
23 Corporation, Baltimore, MD 21205, is formed of high density polyethylene (HDPE), which provides
24 a strong yet lightweight fencing that is well suited for use in a variety of applications, particularly as
25 a safety barrier around construction sites and excavations. Its light weight and flexibility makes it
26 easy to handle by work crews. As may be seen in the figure, the fencing material 172 is clamped
27 between the outside V-angle 122 and the inside V-angle 124, wherein the V-angle joint formed
28 thereby securely grips the fencing material 172 such that it cannot slip along its length (to the left or
29 right in the figure) or across its width (into or out of the page in the figure). This feature, not

1 previously known to be available, provides greatly increased utility in supporting a flexible plastic
2 safety fence 172 of the type that is commonly used to provide a safety barrier surrounding a
3 construction or excavation site.

4
5 **Figure 6B** illustrates a sectional view from the top of an alternate embodiment 101 of the
6 reusable fence post 100 of Figure 3 showing the relationship of the flexible plastic safety fencing 172
7 clamped between the movable 184 and fixed 180 jaw members of the reusable fence post 101
8 according to the present disclosure. In this embodiment, the fixed jaw member 180, formed of the
9 same size angle iron as the outside V-angle 122 that is used in the reusable fence post 100 of Figure
10 3, is rotated by 180 degrees about its longitudinal axis such that it orients the inside V-angle to face
11 the first exterior side of the hollow post 120. The elongated jaw member 184 is formed from a solid
12 no. 2 grade steel rod ½ inch in diameter. The operation is the same as in the reusable fence post 100
13 described herein above. The latching action is essentially the same because the same latching
14 mechanism is used and the elongated jaw member 184 is beveled in the same manner and at the same
15 angle as in the previous embodiment. The flexible plastic fencing 182 is clamped with nearly the same
16 resistance to slippage as the previously described embodiment, but is a little less effective because the
17 radius of the cross section of the elongated jaw member 184 is substantially larger than the radius of
18 the inside corner of the cross section of the inside V-angle 180 (the fixed jaw).

19
20 **Figure 7** illustrates an alternate, low-cost embodiment of a reusable fence post 200 that
21 eliminates the hollow body of the reusable fence post according to the present disclosure. A first
22 length of angle iron, outside V-angle 202 serves as a post. A second length of angle iron, which
23 forms the elongated jaw member and serves as an inside V-angle 204, is hinged to the lower end of
24 the outside V-angle 202 by a hinge 222 that is supported by a hinge bracket 220 welded to the lower
25 end of the inside V-angle 202. A bottom cap 224 is attached to the bottom end of the outside V-
26 angle (post) 202. The outside V-angle 202 is configured to nest within the inside V-angle 204 (the
27 elongated jaw member) when the inside V-angle 204 is swung to a latched position against the
28 flexible plastic fencing 240 held between the outside V-angle 202 and the inside V-angle 204. A latch
29 bracket 230, which may be shaped like an inverted U, is attached to the upper end of the outside V-

1 angle 202. The latching mechanism is constructed similarly to the latching mechanism illustrated in
2 Figures 5A and 5B and operates in the same way.

3
4 The latch bracket 230 of Figure 7 supports the latch pin 232 in a pair of parallel slots 234 cut
5 into extensions of the side portions of the latch bracket 230. A latch pin 232, which may be a bolt
6 retained in the pair of parallel slots 234 by a nut threaded onto one end of the bolt, passes through
7 the parallel slots 234. The upper end of the elongated jaw member 204 is cut at an angle of
8 approximately 30 degrees relative to the longitudinal axis of the elongated jaw member 204 to form
9 a ramp angle or beveled edge 236. Further, the tip 238 of the elongated jaw member 204 is rounded
10 to a radius of approximately 0.063 inches or greater. A latch pin 232, which may be a bolt retained
11 in the pair of parallel slots 234 by a nut (not shown) threaded onto a threaded end of the bolt, passes
12 through the parallel slots 234. As the elongated jaw member 204 is brought into contact with the
13 latch pin 232, the latch pin 232 is caused to slide upward in the slots 234 and along the ramp created
14 by the beveled edge 236 of the elongated jaw member 204 until the tip 238 of the elongated jaw
15 member 204 slips under the latch pin 232. This process is facilitated by the slight angle from the
16 vertical, nominally approximately ten degrees, at which the slots 234 are cut into the sides of the latch
17 bracket 230. After the tip 238 of the elongated jaw member 204 passes under the latch pin 232, the
18 latch pin 232 drops downward in the slots 234 due to the gravitational force exerted thereon, and
19 toward the outside V-angle 202 to latch the elongated jaw member 204 having the inside V-angle
20 against the outside V-angle 202. As will also be appreciated, the latching process may be
21 accomplished very rapidly by simply swinging the elongated jaw member 204 toward the post formed
22 by the outside V-angle 202. The ramp angles provided for the upper end of the elongated jaw
23 member 204 and the slots 234 in the latch bracket 230 enable a rapid movement of the latch pin 232
24 first upward then downward within the slots 234 as the elongated jaw member 204 is brought into
25 contact with it.

26
27 Continuing with Figure 7, the flexible plastic fencing 240 is shown clamped within and
28 between the “jaws” of the reusable fence post 200, the outside V-angle 202 (the post) and the inside
29 V-angle 204 (the elongated jaw member or the pivoting arm or jaw member). The plastic fencing

240, as shown previously in the view of Figure 6A, is seen to be folded or bent around the 90 degree angle within the nested V-angles. The combination of the tight grip provided all across the width of the plastic fencing 240 and the 90 degree bend in the fencing material ensures the flexible plastic fencing 240 is held without slippage either lengthwise or crosswise. At the lower end of the outside V-angle 202 (i.e., the post) and disposed within the V-angle is the stake 206 that is hammered into the ground by repetitive downward thrusts of the post 202 against the stop collar 226. The construction of the mechanism for hammering the stake 206 will be described in conjunction with Figure 8.

Figure 8 illustrates a view of a portion of the opposite side of the embodiment of the reusable fence post 200 shown in Figure 7. In Figure 8, the outside V-angle 202 is shown with the stake 206 disposed within three pipe sections 210, 212, and 214. Each pipe section 210, 212 is attached to the inside V of the outside V-angle 202 by the welds 228. The uppermost pipe section 214 is welded to the stake 206 and a small section 218 of angle iron that is disposed against the inside angle of the outside V-angle 202. The small section 218 of angle iron slides against the inside surface of the outside V-angle 202 to stabilize the up and down movement of the stake 206 during installation or extraction of the stake into or from the ground. The stake 206, a round, solid steel rod 3/4 inch in diameter formed of no. 2 grade steel, includes a stop collar 226 attached to a midpoint of the stake 206. The stake 206 is hammered into the ground or extracted from the ground by forcefully thrusting respectively downward against the stop collar 226 or upward against the underside of the top cap 216, in the same manner as the reusable fence post 100 illustrated in Figures 1 and 2. The stake 206 slides freely within the pipe sections 210 and 212. The top cap 216 may be a metal plate welded across the upper end of the pipe section 214 and reinforced by the small section of angle iron welded to the top cap 216 as shown in Figure 8.

Figure 9 illustrates an installation 300 of a plastic fence around an excavation 310 using four reusable fence posts 100 according to the present disclosure. In the figure, the four reusable fence posts, identified in the figure with the reference number 302, are set up to support a length of the flexible plastic fencing 304 from a storage roll 306. The fencing 304 is already attached to three of

1 the reusable fence posts 302. The reusable fence post 302 in the foreground, the fourth (and last) one
2 from the starting point at the free, initial end of the plastic fencing 304), is shown with its elongated
3 jaw member in position to be swung toward the post to clamp the plastic fencing to the post. As the
4 fencing is secured to the foreground post 302, the storage roll 306 of fencing material may be carried
5 around the nearside corner at the fourth post and secured to the last (and first) post, overlapping the
6 initial end of the fencing 304. The fencing material may be cut to length or left uncut and perhaps tied
7 to the post at that corner of the fence installation 300.

8
9 **Figure 10** illustrates an alternate embodiment 400 of the reusable fence post of Figure 3A but
10 having instead an angle-and-rod jaw configuration (see also Figure 6B supra) and corresponding
11 hinge and latching devices. The reusable fence post 400 of Figure 10 is shown in an installed position
12 with its buttress brace 432 against the ground 406. In this illustrative example, the reusable fence
13 post 400 includes an elongated hollow post 402 having a predetermined length of approximately 4
14 feet, 6 inches, to accommodate a plastic fence width of four feet. The hollow post 402 is fabricated
15 of a steel tube 420 having a wall thickness of 0.063 inch and a square cross section of 2" X 2". The
16 hollow post 402 is closed at the bottom end by a bottom cap 430, which includes a centrally
17 positioned hole (not shown) to allow the passage of a stake 440. The stake 440 is connected at its
18 top end to a sliding hammer disposed within the steel tubing 420. The construction and operation
19 of the sliding hammer is the same as described in Figure 3B herein above. The sliding hammer causes
20 the stake 440 to be driven into or extracted from the ground 406 at the location 408.

21
22 The reusable fence post 400 is shown with a middle portion of the steel tubing 420, the inside
23 V-angle 410, and the solid round rod (the elongated jaw member) 412 components cut away. This
24 view shows how the inside V-angle 410 and the round rod 412 are partially nested when the round
25 rod 412, i.e., the elongated jaw member 412, is positioned against the first exterior side of the hollow
26 post 420. Thus, the inside V-angle 410 and the round rod 412 form a nested joint. This nesting
27 relationship is also formed when the plastic fencing material (not shown in Figure 10 for clarity, but
28 see Figure 6B, reference number 182) is placed between the inside V-angle 410 and the round rod
29 412. The plastic fencing material, being approximately 20 mils thick, is relatively flexible and

1 substantially conforms to the shapes of the inside V-angle 410 and the round rod 412. The corner
2 of the inside V-angle 410 and the round rod 412 force the plastic fencing into approximately a right
3 angle all along the length of the inside V-angle 410 and the round rod 412, which grips the plastic
4 fencing tightly to prevent movement of the plastic fencing in its lengthwise direction. The nested joint
5 also grips the plastic fencing across the full width of the plastic fencing.

6
7 Continuing with Figure 10, there are shown several details of the latching mechanism disposed
8 near the upper end of the illustrative reusable fence post 400 according to the present disclosure.
9 First and second U-shaped loops 414, 416 are attached to the first exterior side 422 of the hollow
10 post 420, one on either side of the inside V-angle 410 just below the upper end of the inside V-angle
11 410. The U-shaped loops 414, 416 are vertically oriented and parallel to each other such that a latch
12 pin 418, when inserted through both loops, is disposed laterally across the round rod 412 to secure
13 it in place, but also nested within the V of the inside V-angle 410. Further shown in Figure 10 is a
14 hinge 426, supported in a hinge bracket 428 attached to the lower end of the first exterior side 422
15 of the hollow body 420, which permits the round rod 412, functioning as the elongated jaw member
16 to pivot fromward or toward the inside V-angle 410 that is also attached to the first exterior side 422
17 of the hollow body 420.

18
19 **Figure 11** illustrates an alternate embodiment of the reusable fence post of Figure 3A having
20 a planar base for supporting the reusable fence post 500 upon a concrete or other impenetrable
21 surface. In this illustrative example, the reusable fence post 500 includes an elongated hollow post
22 502 having a predetermined length of approximately 4 feet, 6 inches, to accommodate a plastic fence
23 width of four feet. The hollow post 502 is fabricated of a steel tube 520 having a wall thickness of
24 0.063 inch and a square cross section of 2" X 2". The hollow post 502 further includes an outside
25 V-angle 522 clamping surface formed of a four foot, three inch length of 1" x 1" x 1/8" angle iron that
26 is centered lengthwise and welded to a first exterior side of the steel tubing 520, with the inside angle
27 (i.e., 90 degrees) of the angle iron facing the first exterior side of the steel tubing 520. The outside
28 V-angle 522 of approximately 270 degrees forms a clamping surface that cooperates with an inside
29 V-angle (approximately 90 degrees) provided by an elongated jaw member 524, also formed of 1"

1 X 1" X 1/8" angle iron. The elongated jaw member 524, which is approximately four feet, four inches
2 long, is attached to a lower end of the steel tubing 520 by a hinge 526 that enables the elongated jaw
3 member 524 to swing about the pivot 526 fromward or toward the outside V-angle 522. The hinge
4 526 is supported by a bracket 528 that is attached to the lower end of the steel tubing 520. In use,
5 the elongated jaw member 524 is swung away from the first exterior side of the hollow post 502 to
6 enable placing the plastic fencing material (not shown in Figure 11, but see Figures 7 and 9) between
7 the outside V-angle 522 of the first exterior side of the hollow post 502 and the inside V-angle of the
8 elongated jaw member 524. A top bracket 550, which is attached to the top end of the hollow post
9 502, includes a latch pin 552 that slides upward and downward in a pair of parallel slots 554 in
10 opposite sides of the top bracket 550. The latch pin 552 moves upward to allow the elongated jaw
11 member 524 to be placed against the plastic fencing and outside V-angle 522 of the hollow post 502.
12 The sliding pin 554 then moves downward to secure the elongated jaw member 524 against the
13 plastic fencing and the outside V-angle 522 of the first exterior side of the hollow post 502. The
14 operation of the latching pin 554 has been further described in conjunction with Figures 5A and 5B
15 for the embodiment of Figures 1 through 4.

16
17 The reusable fence post 500 is shown with a middle portion of the steel tubing 520, the
18 outside V-angle 522, and the inside V-angle (the elongated jaw member) 524 components cut away.
19 This view shows how the outside and inside V-angles 522, 524 are partially nested when the
20 elongated jaw member 522 is positioned against the first exterior side of the hollow post 520. Thus,
21 the outside and inside V-angles 522, 524 form a nested, V-angle joint. This nesting relationship is
22 also formed when the plastic fencing material (not shown in Figure 11 for clarity, but see Figure 6A,
23 reference number 172) is placed between the outside and inside V-angles 522, 524. The plastic
24 fencing material, being approximately 20 mils thick, is relatively flexible and readily conforms to the
25 shapes of the outside and inside V-angles 522, 524. The relatively sharp corners of the outside and
26 inside V-angles 522, 524 force the plastic fencing into a like 90 degree angle all along the length of
27 the V-angles 522, 524, which grips the plastic fencing tightly to prevent movement of the plastic
28 fencing in its lengthwise direction. The nested, V-angle joint also grips the plastic fencing across the
29 full width of the plastic fencing. It should also be pointed out that the sharpness of the 90 degree

1 corner in the nested, V-angle joint is not knife-edge sharp and thus does not damage the plastic
2 fencing material placed in and clamped in the nested, V-angle joint.

3
4 Continuing with Figure 11, there are shown several details of the latching mechanism disposed
5 at the top end of the illustrative reusable fence post according to the present disclosure. The top
6 bracket 550 is seen to also form a cap over the top end of the hollow post 502 to prevent the
7 introduction of moisture or debris. The top bracket 550, formed of 1/4 inch steel plate in the
8 illustrative example, is shown as an inverted U-shaped component that extends beyond the first
9 exterior side of the steel tubing 520 and the nested, V-angle, angle iron stack. Cut in a nearly vertical
10 direction through the extension portions of the sides of the top bracket 550 are parallel slots 552.
11 The parallel slots 552 are approximately 5/16 inch wide to permit free passage of a 1/4 inch bolt 554
12 through the slots 552 of both extensions of the sides of the top bracket 550. The bolt 554, also called
13 a sliding latch 554, moves upward in the slots 552 when a beveled end (see, e.g., Figure 5A) of the
14 elongated jaw member 524 is swung into contact with the sliding latch 554. As the uppermost tip
15 of the elongated jaw member 524 passes under the sliding latch 554, the sliding latch 554 drops
16 downward in the slots to capture the end of the elongated jaw member and hold it against the outside
17 V-angle 522. In an alternate embodiment, a wire bail 556 may be attached to the ends of the sliding
18 latch bolt 554 to aid in grasping and lifting, or pulling downward, the sliding latch bolt to complete
19 the latching of the elongated jaw member 524.

20
21 The base 530 for the reusable fence post 500 of Figure 11 is formed of 1-1/2 inch X 1/4 inch
22 flat steel rolled into a hoop approximately 24 inches in diameter. First and second parallel cross
23 members 532, 534, spaced approximately four inches apart, are welded to the inside perimeter of the
24 base 530 and extend across the diameter of the hoop that forms the base 530. The combination of
25 the hoop and the cross members form a planar base 530. In some embodiments only a single cross
26 member may be required. A boxed receptacle 536 is welded to the first and second parallel cross
27 members in the center portion of the base 530. The boxed receptacle 536 is dimensioned to receive
28 the lower end of the steel tube 520 of the hollow post 502 therein. The steel tube 520 is secured by
29 a pin 540 passing laterally through the receptacle 536 and the steel tube of the hollow post 502 to

1 retain the hollow post 502 in the base 530. When placed on a flat surface of the ground, that is
2 otherwise impenetrable by a stake, the base 530 may be weighted by one or more sandbags. In a
3 modification, the planar base 530, formed as a hoop approximately 24 inches in diameter, may be
4 replaced by first and second straight braces formed of 2" X 2" angle iron (not shown), the first brace
5 welded at right angles and proximate a midpoint thereof to first ends of the first and second cross
6 members 532, 534, and the second brace welded at right angles and proximate a midpoint thereof to
7 second, opposite ends of the first and second cross members 532, 534. As thus attached, the first and
8 second braces of the angle iron are substantially parallel to one another. The combination of the
9 substantially parallel braces and the cross member(s) resemble a letter "H" in a plan view. Further,
10 the first and second braces of the angle iron may include holes disposed near the ends of each first
11 and second brace of angle iron for tying the planar base to stakes or tie-points (neither is shown in
12 the drawing) installed in the surface of the ground. This modification to the base 530 enables
13 improved stability on some kinds of surfaces upon which the reusable fence posts of the present
14 disclosure may be used.

15
16 While the invention has been shown in only several of its forms, it is not thus limited but is
17 susceptible to various changes and modifications without departing from the spirit thereof.